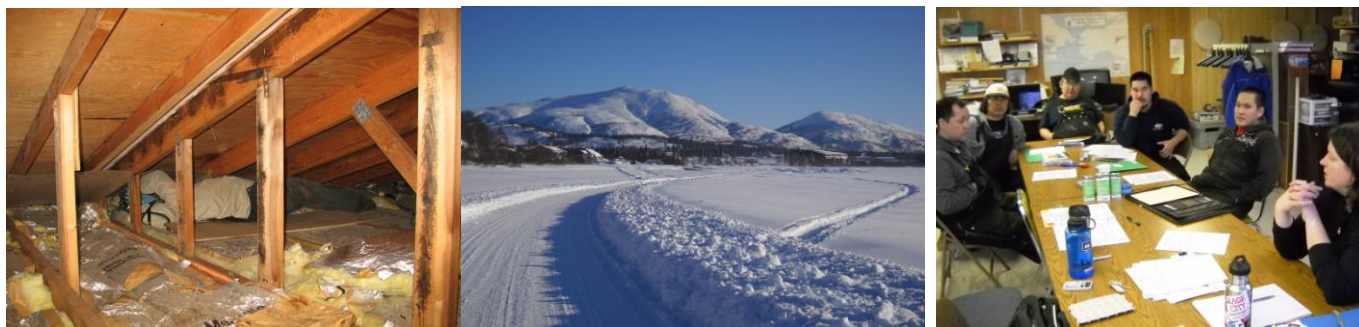


BBNA Tribal Energy Efficiency & Conservation Block Grant Program

Administered by Alaska Building Science Network

Aleknagik Final Report



Community Summary

Three (3) community buildings owned by the Aleknagik Traditional Council received energy efficient lighting and weatherization upgrades:

Traditional Council Office
Old Store/Storage
EPA Office Building

Lighting Retrofits Completed: February 2012

Weatherization Retrofits Completed: October 2011

Village-Wide Energy Efficient Lighting and Weatherization Retrofit Summary:

• Projected Annual Electrical Savings (kWh):	2,718
• Projected Annual Electrical Cost Savings:	\$1,015 ^{1,2}
• Projected Annual Heating Fuel Savings (gallons):	261
• Projected Annual Fuel Cost Savings:	\$1,175 ³
• Total Projected Annual Energy Cost Savings:	\$2,190
• Total village-wide In-kind contribution:	\$7,150
• Total project cost including In-kind contributions:	\$43,021
• Simple Payback (including In-kind contributions):	19.65 years

¹ kWh Rate [used to calculate electrical cost savings] for Weatherization & Heating Measures (AkWarm Library): \$0.18

² kWh Rate [used to calculate electrical cost savings] for Lighting Measures (State of AK - AEA PCE Program Report FY 2011 average): \$0.39

³ #2 Heating Fuel Rate [used to calculate heating fuel savings] (AkWarm Library): \$4.50/gal

Traditional Council Office

Total Building Savings All Measures:

- Projected Annual Electrical Savings (kWh): 2,069
- Projected Annual Electrical Cost Savings: \$769
- Projected Annual Heating Fuel Savings (gallons): 219
- Projected Annual Fuel Cost Savings: \$986
- Total Projected Annual Energy Cost Savings: \$1,755

Lighting Retrofit Summary:



Materials Installed

Fluorescent 2-lamp electronic ballast, (2) 25 watt T8 lamps
 CFL-14 W
 CFL-20 W
 CFL-09 W

Quantity

21
 4
 1
 4

- Pre-retrofit energy use: 2.159 kW
- Post-retrofit energy use: 1.078 kW
- Energy savings projection: 1.081 kW
- Pre-retrofit to post retrofit energy reduction: 50 percent
- Estimated Annual Savings: 1,892 kWh

Hours/day (250 days/year)	Electrical Savings (\$)	Avoided Diesel (gal)	Avoided Diesel (\$)
4 Hours/day	\$421.37	71.64	\$184.82
7 Hours/day	\$737.40	125.40	\$323.44
10 Hours/day	\$1,053.43	179.09	\$462.06
2,000 Hours/year	\$842.75	143.27	\$369.65

Traditional Council Office

Weatherization Retrofit Summary:



Materials Installed

Caulk and seal to reduce air leakage

Sealed rim joist with 1" rigid foam

Installed R-38 cellulose blowing insulation in attic with Standard Truss

• Pre-retrofit energy use:	1,067 gallons / 999 kWh
• Post-retrofit energy use:	848 gallons / 822 kWh
• Annual energy savings projection:	219 gallons / 177 kWh
• Pre-retrofit to post retrofit energy reduction:	21% (Fuel) / 18% (Electricity)
• Estimated Annual Electrical Cost Savings:	\$31.86
• Estimated Annual Heating Fuel Cost Savings:	\$985.50

Old Store/Storage**Total Building Savings All Measures:**

- Projected Annual Electrical Savings (kWh): 467
- Projected Annual Electrical Cost Savings: \$174
- Projected Annual Heating Fuel Savings (Gallons): 42
- Projected Annual Fuel Cost Savings: \$189
- Total Projected Annual Energy Cost Savings: \$363

Lighting Retrofit Summary:**Materials Installed**

Fluorescent 2-lamp electronic ballast, (2) 25 watt T8 lamps
 Fluorescent 4-lamp electronic ballast, (4) 25 watt T8 lamps

Quantity

5
 1

- Pre-retrofit energy use: 0.564 kW
- Post-retrofit energy use: 0.320 kW
- Energy savings projection: 0.244 kW
- Pre-retrofit to post retrofit energy reduction: 43 percent
- Estimated Annual Savings: 427 kWh

Hours/day (250 days/year)	Electrical Savings (\$)	Avoided Diesel (gal)	Avoided Diesel (\$)
4 Hours/day	\$95.11	16.17	\$41.72
7 Hours/day	\$166.44	28.30	\$73.01
10 Hours/day	\$237.78	40.42	\$104.29
500 Hours/year	\$47.56	8.08	\$20.86

Old Store/Storage**Weatherization Retrofit Summary:****Materials Installed**

Caulk and seal to reduce air leakage

Installed R-38 cellulose blowing insulation in attic with Standard Truss

• Pre-retrofit energy use:	366 gallons / 343 kWh
• Post-retrofit energy use:	324 gallons / 303 kWh
• Annual energy savings projection:	42 gallons / 40 kWh
• Pre-retrofit to post retrofit energy reduction:	11% (Fuel) / 12% (Electricity)
• Estimated Annual Electrical Cost Savings:	\$7.33
• Estimated Annual Heating Fuel Cost Savings:	\$189.00

EPA Office Building

Total Building Savings All Measures:

- Projected Annual Electrical Savings (kWh): 182
- Projected Annual Heating Fuel Savings (Gallons): N/A
- Projected Annual Energy Cost Savings: \$71

Lighting Retrofit Summary:



Materials Installed

Fluorescent 2-lamp electronic ballast, (2) 25 watt T8 lamps

Quantity

4

- Pre-retrofit energy use: 0.288 kW
- Post-retrofit energy use: 0.184 kW
- Energy savings projection: 0.104 kW
- Pre-retrofit to post retrofit energy reduction: 36 percent
- Estimated Annual Savings: 182 kWh

Hours/day (250 days/year)	Electrical Savings (\$)	Avoided Diesel (gal)	Avoided Diesel (\$)
4 Hours/day	\$40.54	6.89	\$17.78
7 Hours/day	\$70.94	12.06	\$31.12
10 Hours/day	\$101.35	17.23	\$44.45
2,000Hours/year	\$81.08	13.78	\$35.56